January 2, 1992

TO: Wayne Hedberg, Permit Lead

From: Holland Shepherd, Senior Reclamation Specialist

Re: Second Review of Drum Mine New Heap Leach Facility, M/027/007, Millard County, Utah

The following comments address my second review of the Drum Mine operation's New Heap Leach facility. My review addresses specific plan deficiencies by section of the Minerals Rules, in chronological order, as indicated below:

R613-004-106 - Operation Plan

106.6 - Plan for protecting and storing existing soils

Please identify the location and volume of topsoil materials to be stored on the site.

R613-004-111 - Reclamation Practices

111.12 - Topsoil Redistribution

Please explain in more detail the redistribution of topsoil materials on the reclaimed areas, and indicate whether or not soil amendments will be used. If no soil amendments will be used the operator mustjustify this by providing the Division with the appropriate soil analyses. The Division recommends that a hay mulch (2,000 lb/ac) and an ammonium-phosphate fertilizer (100lb/ac) be applied at final reclamation.

Other Comments

The operator has not addressed item #3 of the earlier 7/17/91, Division review letter.

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December 9, 1991

To: Permit Lead

From: Tony Gallegos, Reclamation Engineer

Re: Review of Jumbo Mining Company, Drum Mine, M/027/007, response to DOGM 7-17-91 review of the new heap leach pad

I have the following comments on the response from Jumbo Mining Company:

The Clay Borrow Pit

JMC states "After backfilling the pit ... ." Do they mean after spreading the salvaged topsoil over the pit or really backfilling the pit, as in filling the pit back up?

The Trench Area

The DOGM submission describes 0.33 acres of disturbance associated with the trench and piles of excavated materials. A letter to Mr. Rody Cox describes the trench as disturbing 0.165 acres. They should clarify this discrepancy.

Reclamation of the New Heap

What will happen to the leachate collection and leak detection structures upon final reclamation. No mention of their final disposition was given.

What will be the final disposition of the liner? Will it be left intact or punctured?

The response says " Topsoiling ... will provide for a partial capping... ." The operative word is "partial". Is partial capping acceptable? How much topsoil will be placed? To what depth will the topsoil cover the leached materials? Where will this topsoil material come from? An analysis of the neutralized heap leach material will be needed for the purpose of evaluating possible revegetation methods(i.e. plant species, fertilization, etc.).

In the reclamation practices portion JMC says that topsoil will be applied to a uniform depth of 6 inches minimum. Over the entire mine site? Where is this topsoil now? What is the volume on hand?

Surety

The surety estimate provided by JMC does not include any costs for neutralization of the heap. This cost will need to be included in the Division's estimate. JMC proposes intermittent rinsing of the heap with water to achieve the required effluent standards, but no time period is estimated.

January 2, 1992

TO: Wayne Hedberg, Permit Lead

From: Holland Shepherd, Senior Reclamation Specialist

Re: Second Review of Drum Mine/Mizpah Pit, M/027/007, Millard County, Utah

The following comments address my second review of the Drum Mine operation's Mizpah plan. My review addresses specific plan deficiencies by section of the Minerals Rules, in chronological order, as indicated below:

I have no further comments regarding this review. The operator has addressed all my earlier commments adequately.

December 9, 1991

To: Permit Lead

From: Tony Gallegos, Reclamation Engineer

Re: Review of Jumbo Mining Company, Drum Mine-Mizpah Pit, M/027/007 response to DOGM letter of 9-6-90

I have reviewed JMC's response and have the following comments:

Reclamation Surety

JMC estimated the tops and sides of the waste dumps as 10.28 acres which implied 8,292 cubic yards of topsoil material which implied a reclamation cost of $5,639 and an adjustment to the Division's estimate.

The Division took the 10.28 acres to represent the area associated with the dumps prior to final reclamation. Final reclamation called for all dump slopes to be regraded to 3:1. Division measurements of the dump areas digitized on the maps provided gave a total area of 10.43 acres. This figure was then rounded to 11 acres to include the 3:1 regrading. JMC needs to clarify what the digitized areas on the maps represent. The Division will then adjust the reclamation cost estimate if warranted.